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SEGMENTAL ANALYSIS OF STRESS ECT IMAGING:
-QUALITATIVE AND QUANTITATIVE ANALYSIS-
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The value of stress and redistribution
thallium emission computed tomography (ECT)
for detecting individual coronary artery
involvement was analyzed in 58 cases who
underwent coronary arteriography.
Perfusion defect was observed in 45 of
the 48 cases with CAD (94%) and in 78 of the
95 diseased vessels (82%). Number of
diseased vessels was accurately predicted in
78% of those with single vessel disease and
in 69% of those with two-vessel disease, but
only in 47% of those with three vessel
disease. Quantitative assessment of
thallium initial uptake and washout rate
improved the sensitivity for detection of
individual vessel involvement (95%) and
accuracy for prediction of three vessel
disease. The sensitivity for detection of
individual vessel involvement was 85% for
RCA, 90% for LAD and 63% for LCX. The
specificity was also high (90% for RCA, 93%
for LAD and 100% for LCX). Marked asynergy
was seen only in 15% of the segments with
transient defect but in 58% of those with
persistent defect.
Thus, stress and redistribution thallium
ECT is a sensitivie and specific tool for
predicting individual vessel involvement and
regional myocardial viability.

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SPATIAL PROGRESSION OF ANTERIOR INFARCT WITH
INCREASING DURATION OF CORONARY OCCLUSION
IN MAN: ASSESSMENT BY TL-201 EMISSION TOMO-
GRAPHY. S. Tamaki, T. Murakami, K. Kadota,
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N. Tamaki, K. Torizuka. Third Division, De-
partment of Internal Medicine, and Depart-
ment of Nuclear Medicine, Kyoto University.

The effects of the duration of coronary
artery occlusion(CAO) on the size and spat-
ial distribution of anterior infarcts were
studied in 24 patients(pts) with first acute
myocardial infarction(MI) due to proximal
left anterior descending CAO who underwent
intracoronary thrombolysis using urokinase.
The pts were grouped by interval from onset
of MI to recanalization; A:<4 hrs(n=9), B:4
-10 hrs(n=9), C:>10 hrs(n=6). On a series of
multiaxial thallium-201 tomograms obtained
4 weeks after MI, the size and distribution
of perfusion defects(PD) were assessed by
dividing the left ventricle into 9 antero-
septal(AS), 14 anterior(AN), 5 posteroseptal
(PS), 14 lateral(L) and 9 inferior(I) myo-
cardial segments scored on a scale of 0-3(0:
normal,1:small PD,2:moderate PD,3:large PD)
and summed to form a total defect score for
each pt. The results(mean±SD) were:

|    | AS    | AN    | PS    | L   | I | Total |       |
|----|-------|-------|-------|-----|---|-------|-------|
| A. | 8±6   | 4±2   | <1    | 0   | 0 | 12±7  | p<.001 |
| B. | 22±3° | 20±4° | 6±2°  | <1  | 0 | 48±7° | vs A:∘ |
| C. | 24±2* | 29±4°*| 13±2°*| 1±1 | 0 | 68±4°*| vs B:* |

These results suggest a spatial progression
of myocardial involvement from localized AS
and/or AN to the surrounding myocardium with
increasing duration of CAO in human anterior
infarcts.

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ASSESSMENT OF ISCHEMIA AND LEFT VENTRICULAR
FUNCTION BY EXERCISE RADIONUCLIDE VENTRI-
CULOGRAPHY AND STRESS $^{201}$Tl-MYOCARDIAL
EMISSION COMPUTED TOMOGRAPHY. A.Uenami,
T.Mizuno, K.Wakino, J.Ohno. Mimihara G.
Hospital. Sakai.

We have developed "Cardio-respiratory moni-
toring system" which enables the "real time"
monitoring of cardiac and pulmonary func-
tions during the exercise radionuclide
studies.
In order to assess ischemia, LV function and
reginal LV wall monitor, this system and
$^{201}$Tl-Myocardial ECT were performed 20
patients who underwent selective coronary
angiography.
We had been much interested experience in
correspondent to ischemia and LV functional
parameters (EF,CD,EDV,ESV,SV. etc) on
exercise studies.
In conclusion, exercise radionuclide ventri-
culography and $^{201}$Tl-Myocardial ECT were
clinically useful for the evaluation of LV
functional reserve.

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STUDY ON THE SITE AND REGIONAL WALL MOTION
IN MYOCARDIAL INFARCTION-COMPARISON BETWEEN
TL-201 ECT AND TWO DIMENSIONAL ECHOCARDIO-
GRAM. M.Ohyanagi,A.Konishiike,Y.Todo,Y.
Tsuda,R.Fujisue,M.Tanimoto,T.Yamamoto,
Y.Kawai,T.Iwasaki and M.Fukuchi. 1st dep.of
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The estimation of the site and the abnor-
marity of the regional wall motion of myo-
cardial infarction is important from the
view of treatment as well as prognosis.One
month after the onset of myocardial infarc-
tion,Tl-201 emission computed tomogram(ECT),
two dimensional echocardiogram(2DE),coro-
nary angiogram(CAG)and left ventriculogram
(LVG) were performed. The left ventricular
short axis image by ECT was reconstructed
at the level of mitral valve,the papillary
muscle,the apex,and the average count of
box ROI was calculated for each level and
the percentage of the largest count in 24
sections was estimated as the ROI value.
The ROI value were divided into those less
than 40%(Akinesis),40-70%(Reduced)and 70 or
above(Normal).On the 2DE,the short axis
view at each level were divided into 8 sec-
tions.The radial shortening rate for each
section was calculated and those of 10% or
less were estimated as Akinesis and from
10%-normal value-1SD sa Hypokinesis. There
were a good correlation between the ROI
value of ECT and radial shortening rate of
2DE.